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IN THE UNITED STATES PATENT & TRADEMARK OFFICE

IN RE APPLICATION OF:

WILLIAM M. CANFIELD

:

: EXAMINER: PATTERSON, JR., C.

SERIAL NO: 09/895,072

:

FILED: July 02, 2001

: GROUP ART UNIT: 1652

FOR: METHODS FOR PRODUCING
HIGHLY PHOSPHORYLATED
LYSOSOMAL HYDROLASES

DECLARATION UNDER 37 C.F.R. 1.132

ASSISTANT COMMISSIONER FOR PATENTS
WASHINGTON, D.C. 20231

SIR:

Now comes Stuart Kornfeld, M.D. who states that:

1. I am the David C. and Betty Farrell Distinguished Professor of Medicine at Washington University, St. Louis, Missouri.
2. My area of expertise is in lysosomal enzyme trafficking. My curriculum vitae is attached as Exhibit 1.
3. I am formerly a member of the board of directors of Novazyme Pharmaceuticals, Inc., the prior assignee of the application.

4. It is my understanding that a point of contention in this application is whether it would require undue experimentation to purify N-acetylglucosamine-1-phosphotransferase to a specific activity of at least 10^7 pmol/h/mg and/or phosphodiesterase-GlcNAcase to a specific activity 472,000 units/mg based on the descriptions in Bao et al ((1996) *J. Biol. Chem.* 271(49):31437-31445); Bao et al ((1996) *J. Biol. Chem.* 271(49):31446-31461) and Kornfeld ((1998) *J. Biol. Chem.* 273(36):23203-23210) notwithstanding the fact that the antibodies used in those publications were not made available to the public.
5. During a period of approximately 15 years, my lab and other labs attempted to purify these two enzymes without success notwithstanding employing state of the art biochemical methods. In addition, I am aware of other attempts at purification using monoclonal antibody affinity techniques, which also failed to yield anything other than a partially purified preparation with relatively low specific activity.
6. To be useful for affinity purification, the monoclonal antibodies must have a collection of specific attributes. These antibodies must bind with high affinity as the enzymes are a trace component of a crude protein preparation; the antibodies must not inhibit the intrinsic enzymatic activity while bound; and the binding between the antibody and the protein must be reversible under mild conditions consistent with the stability profile of the target enzyme. Although it is presumably possible to isolate other monoclonal antibodies with these required properties success would be an extremely rare event and as a result would require undue experimentation. Therefore,

it would require undue experimentation to purify the N-acetylglucosamine-1-phosphotransferase and/or phosphodiester _-GlcNAcase without the two specific antibodies described in the above-identified patent application.

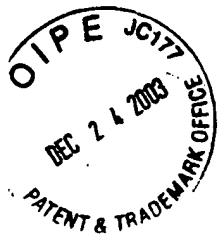
7. Therefore, the descriptions in the publications of paragraph 4 above, which are also cited by the patent office, do not provide sufficient information to enable one of skill in the art to purify the phosphotransferase and the N-acetylglucosamine-1-phosphodiester _-N-Acetylglucosaminidase enzymes to the specific activities noted above.
8. I declare under penalty of perjury that the foregoing is believed to be true and accurate.

Stuart Kornfeld M.D.

Stuart Kornfeld, M.D.

12/19/03

Date



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1965 - 1966 Assistant Resident in Ward Medicine, Barnes Hospital, St.
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2000-present Co-Director, Physician Scientist Training Program

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Research Career Development Award, National Institutes of Health, 1971-1976
Institute of Medicine- 1983
National Academy of Sciences - 1982
American Academy of Arts and Science
Alumni/Faculty Award, Washington University School of Medicine, 1987
Jubilee Lecturer and Harden Medallist, The Biochemical Society, 1989
Passano Award, 1991 (with William Sly)
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Karl Meyer Award, Society for Glycobiology, 1999
UCSD/Nature Medicine "Mentorship Award", 2002
Gerty & Carl Cori Faculty Recognition Award, Washington University, 2002
Second Century Award, Washington University, 2002

Editorial Responsibilities:

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| 1972-1996 | Editorial Board, Archives of Biochemistry and Biophysics |
| 1976-1981 | Editorial Board, Journal of Biological Chemistry |
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| 1981-1982 | Editor, Journal of Clinical Investigation |
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| 1985-1991 | Editorial Board, Proceedings of the National Academy of Sciences |
| 1988-1991 | Editorial Board, Journal of Cell Biology |
| 1992-Present | Editorial Board, Molecular Biology of the Cell |
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Professional Societies and Organizations:

- American Society for Clinical Investigation
American Society of Biological Chemists
American Society of Hematology
Association of American Physicians
Foreign Member, Finnish Society of Sciences and Letters

Board Memberships:

- 1972-1975 Councillor, American Society for Clinical Investigation

1974-1977	Member, NIH Cell Biology Study Section
1983-1987	Member, NIADDK Board of Scientific Counselors
1986-1991	Secretary, Association of American Physicians
1991-1997	Councillor, Association of American Physicians
1986-1994	Member, Scientific Review Board, Howard Hughes Medical Institute
1987-1995	Member, Board of Scientific Advisors, Jane Coffin Childs Memorial Fund for Medical Research
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